

PX-708A

Model PX-708A Internal ATAPI

**DVD±R/RW, CD-R/RW DRIVE
INSTALLATION AND USERS MANUAL**



OCTOBER 2003

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Record Your Serial Number

For future reference, record the serial number and the TLA code (found on your drive's label) in the space provided below.

--

TLA/Firmware Revision Number

--

DECLARATION OF CONFORMITY

Model Number: PX-708A

Trade Name: PLEXTOR

Responsible Party: PLEXTOR Co., Ltd.

Address: 48383 Fremont Blvd, Suite 120, Fremont, CA 94538-6509, USA

Telephone Number: 510-440-2000

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FEDERAL COMMUNICATIONS COMMISSION STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CANADIAN DEPARTMENT OF COMMUNICATIONS STATEMENT

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

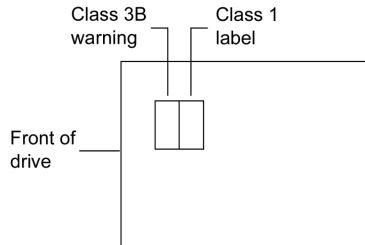
LASER INFORMATION

These products have been designed and manufactured according to IEC 60825-1 on the Safety of Laser products. This product comes under “Class 1 Laser Products.”

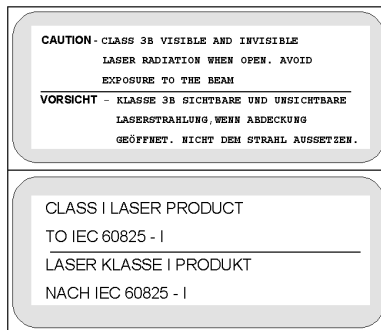
CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

A Laser Caution Label is attached on the top of the internal drive model. The label reads:
“CAUTION – CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO THE BEAM.”

Top View of Internal Drive Showing Caution Label Location



Detail of Laser Caution Labels



The laser beam emitted from the optical pickup is visible and invisible. Accordingly:

- Do not open the optical pickup housing.
- Obtain service only from Plextor-authorized personnel.

CAUTION: To disconnect the DVD/CD drive from an electrical current, pull out the computer's power plug.

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1. Getting Started

Congratulations! Thank you for purchasing the Plextor® PX-708A, a reliable, high-performance recordable DVD and CD writer, rewriter, and player. We appreciate the confidence you have shown in us. Our goal is to put you—and keep you—on the leading edge of DVD and CD technology.

About this Manual

Please read this manual carefully and keep it handy for easy reference. Use the manual for installation, operation and troubleshooting. If your drive needs service, see your dealer or call Plextor's Technical Support Department.

In this manual you should find all the information you need to successfully install, operate and troubleshoot your drive. If you run into a problem that doesn't seem to be covered, however, please contact us. (See "Appendix B: Technical Support" for the different ways you can reach us.) You will be connected to our friendly, helpful band of tech support engineers. What might seem like an uncooperative drive to you could very well be a 30-second fix to them. But we will never know unless you contact us.

Meet Your PX-708A

The PX-708A is a DVD ReWritable/CD ReWritable drive that provides professional quality DVD and CD performance for writing, rewriting and reading.

What the PX-708A Does

For DVDs, the PX-708A:

- Writes DVD+R (recordable DVD, “plus” format) media at up to 8X speed.
- Writes DVD-R (recordable DVD, “minus” format) media at up to 4X speed.
- Writes DVD+RW (re-writable DVD, “plus format”) media at up to 4X speed.
- Writes DVD-RW (re-writable DVD, “minus format”) media at up to 2X speed.
- Supports DVD+VR real time editing.
- Reads DVD discs at up to 12X.
- Reads DVD-Video discs at 5X-12X (single layer discs) or 3X-8X (dual layer) discs.
- Supports DVD+RW background format.

For CDs, the PX-708A:

- Writes to CD-R (recordable CD) media at up to 40X speed.
- Writes to CD-RW (re-writable CD) media at up to 24X speed.
- Reads all CD-ROM, CD-RW, and CD-R data media at a maximum of 40X speed.
- Reads CD-DA (audio) and CD-R audio media at up to 40X speed.
- Reads CD-RW audio media at up to 32X speed.

Features of the PX-708A

- *ATAPI interface*: Easily installs in virtually any PC with an E-IDE ATAPI interface.
- *High speed transfers*: Supports Ultra DMA33, DMA Mode 2, and PIO Mode 4.
- *PoweRec*: Plextor Optimized Writing Error Reduction Control (PoweRec) adjusts laser power and writing speed so they're at the optimum settings for that particular disc. (For example, when you're writing a DVD, PoweRec checks to see if the maximum 8X speed is possible, and sets the optimum write speed.) You can enable and disable PoweRec.
- *MMC compliance*: Supports the MMC-4 command set.
- *Flash memory*: Allows upgrading the PX-708A to the latest firmware revision (available from the Plextor web site) without opening the computer or physically accessing the drive.
- *Black tray*: Reduces the effect of optical distortion by absorbing reflections from the laser beam, enhancing read quality.
- *Plug and Play*: Supports Windows Plug and Play.
- *Self-test diagnostics*: The PX-708A has a self-test diagnostic function for easy troubleshooting.

DVD Features

- *Lossless linking for DVD+RW*: Allows DVD+RW discs to be edited and still play on DVD-ROM players.
- *Zero Link for DVD-RW*: Has 0 byte gap between sessions so the discs are compatible with all players. This allows DVD-RW discs to be edited and still play on DVD-ROM players.
- *Wide DVD+R/RW and DVD-R/RW media compatibility*: Compatible with a wide range of DVD±R and DVD±RW media.

- *Multiple DVD types*: Supports DVD-ROM, DVD-Video, multi-border, multi-session, DVD+VR, for read and write; supports DVD-VR for read only.
- *Versatile recording modes*: Including sequential write, multi session, random access write.
- *SpeedRead/silent operation*: For DVD-Video discs equipped with CSS copy protection, you can set DVD playback speed for fast playback (SpeedRead) or leave at the factory default for silent operation.
- *Mount Rainier*: DVD+MRW (Mount Rainier) physical formatting in background is supported.

CD-R and CD-RW Features

- *Variety of recording modes*: Supports track-at-once, disc-at-once, session-at-once, multi-session, variable and fixed packet writing, and CD-MRW (Mount Rainier).
- *Buffer Underrun Proof Technology*: Eliminates buffer underrun errors, so you can safely use your computer for other tasks while you're writing to a CD-R or CD-RW disc.
- *Wide compatibility*: Wide CD-R and CD-RW media compatibility.
- *Orange Book compatibility*: Compatible with Orange Book, Parts II and III.
- *UDF support*: UDF file system implemented through packet writing.
- *OPC and ROPC*: Optimum Power Control and Running Optimum Power Control, which adjust the laser power for the optimum write strategy.
- *VariRec*: Lets you record at low speeds (4X or 8X) for highest quality, while providing user adjustment of the recording power above or below a default level. This adjustment lets you customize the optimum laser power to your own needs.
- *CD-TEXT, CD+G*: Supports CD-TEXT and CD+G writing.

- **Overburn:** Lets you burn more information on a standard disc—audio up to 99 minutes 59 seconds in length, or a data disc up to 875 MB in capacity.

Minimum Configuration to Use the PX-708A

Here's what you'll need in order to install and use the PX-708A drive.

- **Computer:** Pentium III 700-MHz CPU or faster.
- **Minimum RAM:** 128 MB.
- **Interface:** IDE ATAPI interface.
- **Hard disk size:** To write to a CD in image mode (that is, to write an image of a CD to your hard disk), you need 1 GB of free space. For a DVD, 6 GB of free space is recommended. (For more accurate guidelines, see the help files or documentation for the recording software you're using.)
- **Operating System:** Windows XP, 2000, Me, 98SE.

NOTE: You cannot use the PX-708A with early versions of Windows 98; if you are using Windows 98, it must be Windows 98SE (Second Edition).

What You Can Do with the PX-708A

Just look at some of the things you can do with your PX-708A:

- Record slide shows or digital video onto DVD+R, -R, +RW and -RW discs.
- Play DVD+R, DVD+RW, DVD-R, and DVD-RW discs.
- Record data or audio onto writable or rewritable CD media.
- Play music CDs.
- Save photos and other images on rewritable or writable CDs.
- Create a CD or DVD "sneakernet" to share information with colleagues—just use software such as Roxio's DirectCD to drag and drop files onto DVD+R, DVD+RW, CD-R or CD-RW media, then continue adding files and sharing the same disc.
- Archive images and video to DVD or CD.
- Master new software programs on DVD or CD.

What's In the Box

What you find in your Plextor box depends on what the company that sold you the box put in—or took out—while the Plextor drive was in their possession. Plextor currently sells the PX-708A drive in this configuration:

- PX-708A DVD±R/RW and CD-R/RW drive
- 40-pin IDE ribbon cable
- 4 mounting screws
- Extra jumper
- Emergency eject tool
- 1 piece of approved DVD+R media
- Plextor DVD with bundled software for writing DVDs and CDs
- *PX-708A Installation and Users Manual*

If the security sticker on top of your box is cut, there may be a good reason: for example, a dealer may have added other components or software. Carefully check the contents to ensure nothing has been removed. If something is missing, contact the party from whom you purchased the box for an explanation.

Save Your Box!

Be sure to save the box after you have installed your drive. The box and its packaging material were designed and drop tested to ensure you can endure rough treatment and still arrive in working order. If you have to ship your drive back to Plextor, you'll want to send it in the original box. (For more details about returning your drive to Plextor, see page 61.)

NOTE: This applies to the Plextor retail box. Your drive may have been shipped in a different box with other contents, depending on whom you purchased the drive from and what they included inside the box.

If your drive came pre-installed, some or all of the items above may have been installed and may not be separately available. See the Plextor web site for locations to purchase additional or replacement accessories.

PX-708A Drive Features and Controls

Before proceeding, you should become familiar with the controls and features of your Plextor drive. Match the parts of your drive to the illustrations below.

Front Panel—PX-708A Internal Drive

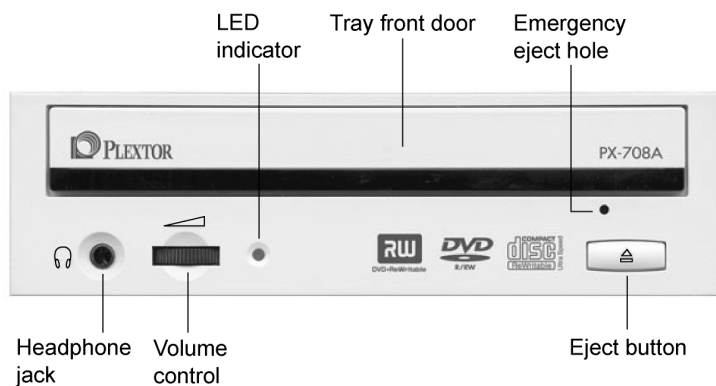


Figure 1: Front panel of the PX-708A internal ATAPI drive

- **LED indicator:** Illuminated yellow for disc initializing, reading, and ejecting. Illuminated amber for writing. (Blink rate indicates writing speed.) Illuminated green during standby and when Buffer Underrun Proof Technology is operational.
- **Tray front door:** Attached to tray drawer.
- **Emergency eject hole:** If the automatic eject button does not work, insert the emergency eject tool, paper clip, or other thin, rigid object in this hole to eject tray. Turn OFF power before using this feature.
- **Headphone jack:** Stereo mini-jack for headphones and powered speakers.
- **Volume control:** Controls volume of headphone jack.

NOTE: The volume control on the front panel of your drive adjusts only the sound level of the headphone jack. It has no impact on the volume level of the rear panel audio outputs.

- **Eject button:** Push once to eject tray. Push again to insert the tray back into the PX-708A. To prevent wear on the drive, always use the eject button to insert the tray.

This button also controls SpeedRead and silent operation for DVD-Video discs with CSS protection. To enable SpeedRead, with the disc tray empty, press and hold the eject button for 3 seconds, then insert a DVD-Video disc. The disc is played back at an accelerated speed.

Rear Panel—PX-708A Internal Drive

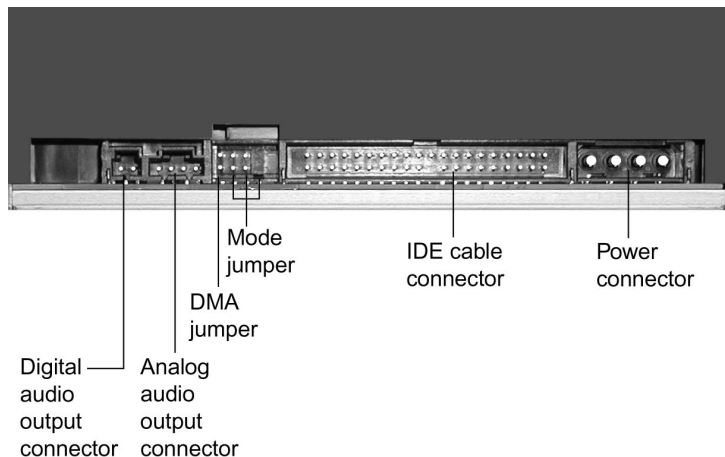


Figure 2: Rear panel of the PX-708A internal ATAPI drive

- **Digital audio output connector:** Outputs a digital stereo signal. Use this to connect to a sound board that supports Sony/Philips Digital Interface (SPDIF) or Digital-In.

- **Analog audio output connector:** Outputs an analog stereo signal. Use this to connect to a sound board or audio amplifier. Use a standard MPC-3 type, 4-pin connector.
- **Mode jumper:** Use the mode jumper to select operation as an IDE master or slave, or for cable select. In general, leave this jumper at its factory setting, which is master; and ensure that any other device on the bus is jumpered as slave.
- **DMA jumper:** Use the DMA jumper to convert between Ultra DMA Mode 0-2 (no jumper, default) and Multiword DMA Mode 0-2 (with jumper installed). In general, leave this jumper at its factory setting, which is Ultra DMA (that is, no jumper installed).
- **IDE cable connector:** Connects to your computer's IDE (ATAPI) interface using 40-pin IDE flat ribbon cable.
- **Power connector:** Connects to your computer's power supply to provide DC +5 volts and +12 volts to the PX-708A.

About Software

In order to record on DVD±R/RW and CD-R/RW discs you will need to have mastering, packet writing, or duplication software installed on your computer system. If you purchased a retail kit from Plextor, you'll get software packages that include such software.

You can use Roxio's Easy CD Creator DVD Edition to burn both DVDs and CDs. The software lets you burn and share anything on CD or DVD, including music, photos, and videos. You can also back up your critical data to a CD or DVD.

One component of Easy CD Creator is DirectCD, which makes the Plextor PX-708A drive as easy to use as a hard disk drive. You can drag and drop files, rename files, delete files, and create new directories right on the recordable CD or DVD disc. You can even save files directly from your word processing software, spreadsheet, or other application directly to the disc. (For more information about Easy CD Creator, install this application and examine the help files.)

For details on other software packages that are available for writing to DVDs or CDs, please visit the web sites of the companies whose software you are interested in, refer to their user's manuals, or look at the help option within the software. A list of various software packages that you can use with your Plextor drive can be found in the Support/Compatibility section of www.plextor.com.

Precautions

Like the rest of your computer system, your PX-708A requires reasonable care in its installation and use.

- Keep the area around your drive clean from dust, smoke, and other contaminants.
- Do not allow moisture or liquids, including water or cleaning fluids, to touch the drive. Thinner, benzene, or alcohol-based solvents can mar your drive's surface.
- Do not drop or jolt the drive.
- Do not attempt to open the drive and service it yourself. Removing the cover may expose you to harmful electrical voltages or the laser beam. For your safety, entrust service to experienced service personnel only.
- Keep your DVDs and CDs free of dirt or other contaminants, by storing them in jewel cases. Use only industry-standard discs. Do not insert dirty, warped, poorly balanced, or cracked discs into the drive.
- Do not clean discs using a circular motion. Instead, using a soft, dry cloth, wipe gently in a radial motion; start at the center of the disc and proceed to the outer edge.
- Do not attempt to clean your drive using solvent-based cleaners or an air compressor.
- Do not attempt to clean your drive using a CD cleaning disc. These discs can damage your drive permanently.

2. Installing Your PX-708A Internal Drive

This chapter explains how to physically install your PX-708A in your computer. The steps you'll need to do are as follows:

1. Turn OFF your computer system.
2. Set the jumpers for your new PX-708A drive, if necessary.
3. Mount the drive into an available drive bay inside the computer system.
4. Make all necessary cabling connections: IDE cable, power cable, and audio cable.
5. Turn your computer system ON.

The following pages give more details for this procedure.

QuickStart Installation—For Experienced PC Users Only

If you've installed computer peripherals before, use this QuickStart installation to get up and running quickly.

Typical Scenario 1: You have a PC with an IDE interface installed, you have Windows 98SE, Me, XP, or 2000, and you have nothing installed on the secondary IDE port. **What to do:** Leave the PX-708A's jumper set to Master, attach it to the secondary IDE port, and go. Windows will recognize the drive automatically.

Typical Scenario 2: You have a PC with an IDE interface installed, you have Windows 98SE, Me, XP, or 2000, the primary IDE port already has two devices connected and you have a CD-ROM installed on the secondary IDE port. **What to do:** Change the CD-ROM to Slave, leave the PX-708A's jumper set to Master and attach the PX-708A to the secondary IDE port. Windows recognizes the new drive automatically.

If neither of these situations applies to you, or you're not comfortable with IDE installation, read the rest of this chapter for more detailed installation instructions.

Open the Computer and Prepare for Installation

To determine whether your PX-708A will be a Master or a Slave, open your computer and examine the IDE connections to the motherboard.

To open the computer:

1. Before proceeding, make sure the power to your computer and any external peripherals is OFF and your computer is UNPLUGGED from its power source.
2. Remove your computer's cover, following the directions provided by your computer's manufacturer. Typically, this involves loosening or removing several screws on the back panel of your computer and sliding off the cover. See Figure 3 for an example.

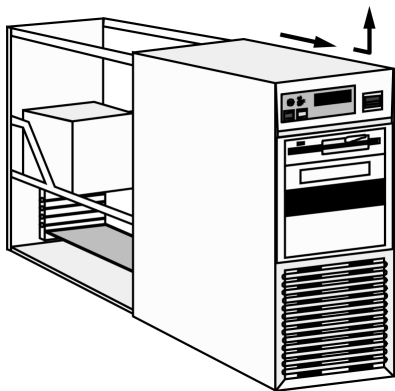


Figure 3: Removing a typical computer's cover

Determine Your Existing IDE Configuration

With your computer open, determine the existing IDE configuration. You can do this by looking at the 40-pin IDE ribbon cable (or cables—there may be two) and seeing what is connected to them.

One end of the IDE cable is connected to a port on the computer's motherboard; and the other end is connected to one or two peripheral devices (such as a hard disk or CD-ROM drive). If there are two devices, one is configured as *Master* and the other the *Slave*, as indicated by the position of jumpers on the back of the drive.

In the case of the Cable Select bus, both devices must be jumpered as *Cable Select*. This configuration requires a special Cable Select cable.

If there are two IDE ports, one is for the *primary* IDE bus and the other is for the *secondary* bus.

Before you install your PX-708A, your computer's IDE configuration is usually one of the following:

- **Configuration A:** Hard disks connected as Master and Slave devices on primary IDE port; CD-ROM drive connected as the Master device on secondary IDE port.
- **Configuration B:** Hard disk connected as Master device and DVD or CD-ROM drive connected as Slave on the primary IDE port; nothing connected to secondary IDE port.
- **Configuration C:** Hard disk connected as Master device on primary IDE port; nothing connected to secondary IDE port.
- **Configuration D:** System uses special "Cable Select" cables; all devices are jumpered for Cable Select.

Set the Drive's Mode Jumper

You specify your drive's Master, Slave, or Cable Select setting before installing it. You do this by changing the position of a jumper on the mode jumper block at the rear of the drive.

Your drive ships from our factory with its mode jumper set to operate the PX-708A as a Master. This will work in most custom system configurations. If your computer is from a large OEM system manufacturer such as IBM, Hewlett Packard, Gateway or Compaq, you will need to pay particular attention to whether the computer uses the Cable Select scheme.

Changing the Mode Jumper on Your PX-708A Drive

The drive arrives from the factory with its mode jumper set to Master. (A function is ON if the jumper is installed and OFF if the jumper is removed.)

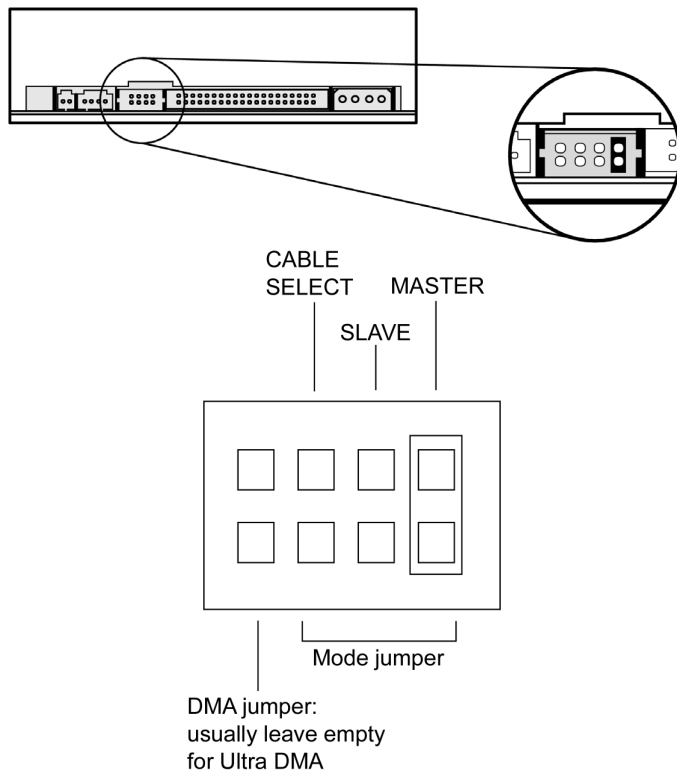


Figure 4: Factory settings for mode jumper at the rear of the internal drive

Changing to a Master, Slave, or Cable Select

The Master/Slave/Cable Select setting for the drive is determined by the mode jumper. The jumper is placed over one of the sets of mode pins. To change the drive from Master to Slave or to Cable Select, you must move the jumper.

For example, to change the drive to be a Slave, move the jumper to the right set of mode pins, leaving the other pins uncovered. To change the drive for Cable Select, move the jumper to the left set of mode pins.

Note that if any device is jumpered as Cable Select, then *both* devices connected to that cable must be jumpered as Cable Select. In addition, the cable you use must be a special Cable Select cable.

Changing Jumper Settings

- To remove a jumper, pull it off with your fingers or a pair of needle-nose pliers.
- To install a jumper, push it onto the jumper pins.

CAUTION: Ensure power to the drive is OFF before installing or removing a jumper.

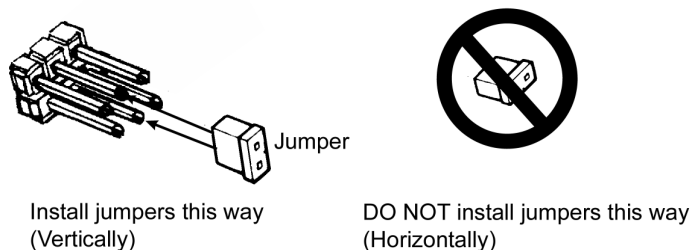


Figure 5: *Install the mode jumper across vertical pairs of pins*

CAUTION: Install the mode jumper across the pins as shown (vertically). Do not connect one pin switch to another by installing the jumper lengthwise (horizontally). Doing so could result in damage to the drive.

Select an IDE Configuration

Set the jumper according to the desired configuration, as shown in the tables and illustrations on the next few pages.

NOTE: For best CD-RW performance, try to connect the PX-708A to the IDE port that is not connected to the hard disk drive or to a CD-ROM drive. In most cases, this will be the secondary IDE port.

NOTE: For best results, set the PX-708A to be the Master, if possible.

Before PX-708A Installation		How to Install the PX-708A	
A	Hard disks connected as Master and Slave devices on primary IDE port; CD-ROM connected as Master device on secondary IDE port.	Remove the CD-ROM drive, change it to Slave, and re-connect it to the secondary IDE port.	
		Set the mode jumper to Master, and connect the PX-708A as Master device to the secondary IDE port.	

Primary IDE Port

Hard disk connected as master

Hard disk connected as slave

Secondary IDE Port

Connect Plextor drive as master

Connect CD-ROM drive as slave

Set Plextor drive's jumper to:

CS S M

Figure 6. How to install the PX-708A if your computer is originally set up in configuration A

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NOTE: The configuration shown in Figure 6 can make it very difficult to write from the CD-ROM to the PX-708A at maximum rated speed using “on-the-fly” copying.

System configuration and performance will make a big difference. Depending on how fast the CD-ROM drive can stream data to the PX-708A, it may not be fast enough to keep the buffer full. In this case, the buffer may become empty and a buffer underrun error may occur. However, because it is equipped with Buffer Underrun Proof Technology, your PX-708A can still make successful copies if you use software that supports this feature. (All software shipped with PX-708A drive retail kits supports Buffer Underrun Proof Technology.)

If you still have problems writing with this configuration, use the image writing method (that is, write an image to your hard drive, then write that image onto the CD-R or CD-RW media), or record at a lower speed for best results. We also recommend that DMA be enabled on your computer, if your system supports it.

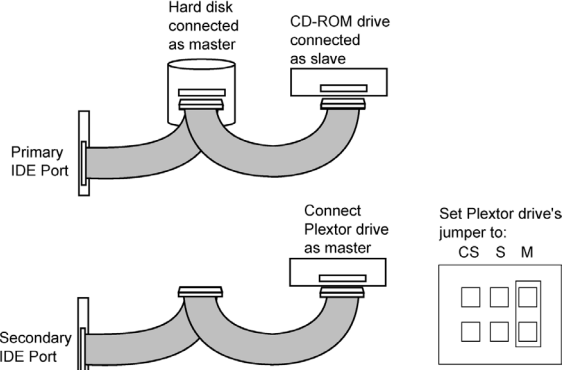
Before PX-708A Installation		How to Install the PX-708A	
B	Hard disk connected as Master device, and CD-ROM or DVD-ROM drive connected as Slave on the primary IDE port; nothing connected to secondary IDE port.	Set the mode jumper to Master, and connect the PX-708A as Master to secondary IDE port.	
			

Figure 7. How to install the PX-708A if your computer is originally set up in configuration B

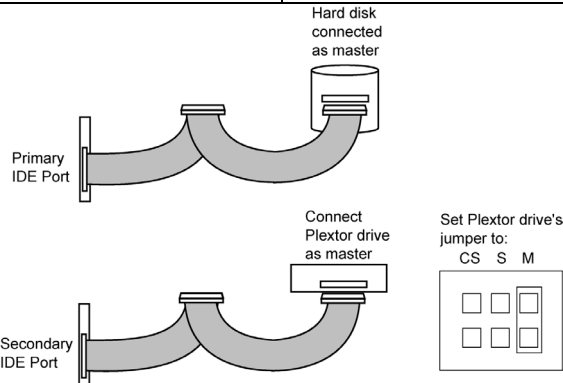
	Before PX-708A Installation	How to Install the PX-708A									
C	Hard disk connected as Master device on primary IDE port; nothing connected to secondary IDE port.	Set the mode jumper to Master, and connect the PX-708A as Master to secondary IDE port.									
	 <p>Hard disk connected as master</p> <p>Primary IDE Port</p> <p>Secondary IDE Port</p> <p>Connect Plextor drive as master</p> <p>Set Plextor drive's jumper to:</p> <table border="1"><tr><td>CS</td><td>S</td><td>M</td></tr><tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td></tr><tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr></table>		CS	S	M	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CS	S	M									
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>									
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									

Figure 8. How to install the PX-708A if your computer is originally set up in configuration C

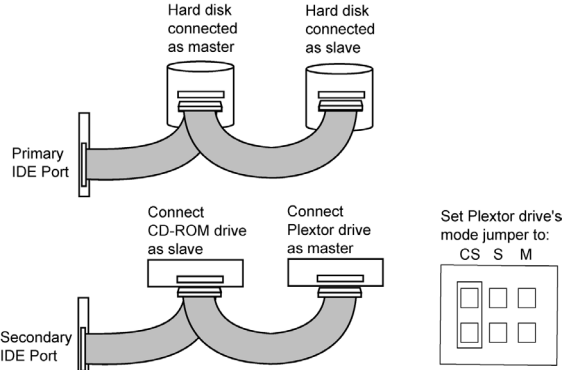
	Before PX-708A Installation	How to Install the PX-708A
D	System uses special Cable Select cables; all devices are jumpered for Cable Select.	Set the PX-708A's mode jumper to CSEL, and connect the drive to the end of the cable from the computer's IDE interface connector.
		

Figure 9: How to install the PX-708A if your computer is originally set up in configuration D

About Cable Select

The Cable Select jumper position sets the PX-708A drive to use the CSEL signal from the IDE interface for configuration purposes. This signal automatically selects the correct Master/Slave setting for the drive.

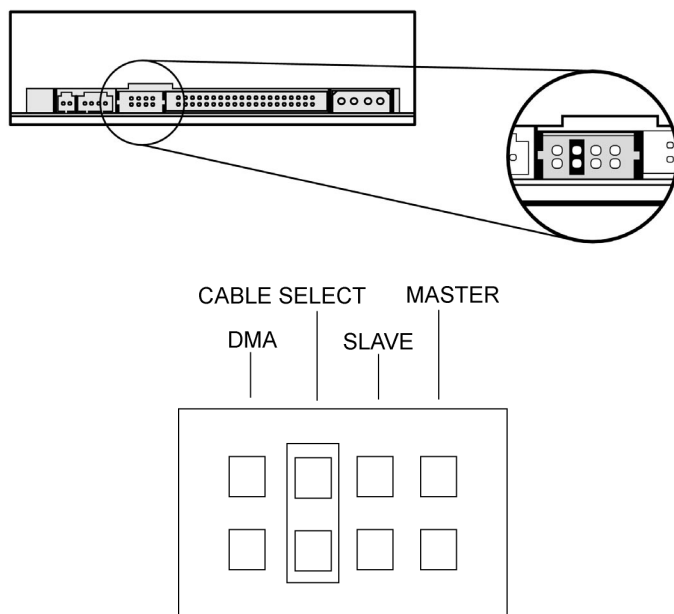


Figure 10: Configuring the PX-708A drive for Cable Select

To use CSEL, you must have:

- A computer that supports CSEL.
- A special CSEL (Cable Select) cable for IDE.

NOTE: The IDE cable supplied by Plextor does *not* support CSEL. To use CSEL and Cable Select, you'll have to purchase a CSEL cable, or use one that may be supplied with your CSEL-configured system.

Identifying Whether Your System Uses Cable Select

If you are unsure whether or not your system has a Cable Select cable installed, either look at the cable (see Figure 13) or look at the jumpers on the CD-ROM drive. If any device is jumpered as Cable Select, then both devices on that cable should be jumpered the same.

Locating the Master Position on a Cable Select Cable

With Cable Select, Master and Slave are determined not by jumpers, but by the connectors on the Cable Select cable. The connectors are identified as Master or Slave.

Set the DMA Jumper

Your PX-708A ships from the factory with no DMA jumper installed. (The pins are empty.) The empty pins mean the drive is set to Ultra DMA. This setting should work in most cases, so you don't have to do anything more.

With some (generally older) personal computers that do not have an Ultra DMA IDE chipset, the computer may “hang” or crash with the PX-708A set to the default Ultra DMA setting. If this happens, change the PX-708A to Multiword DMA mode by installing the spare jumper across the two DMA jumper pins just to the left of the mode jumper pins.

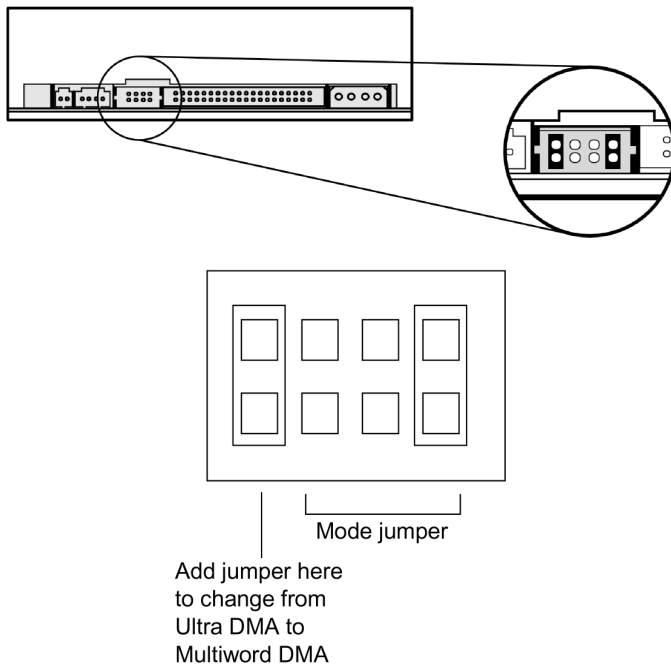


Figure 11: Add the DMA jumper if you need to change to Multiword DMA

Install the PX-708A Drive

Before proceeding to install the PX-708A drive in your personal computer, double-check your jumper setting.

Record the Serial Number

Record the serial number and TLA code of your drive on the inside front cover of this manual.

Mount the Drive in the Computer

You can mount your internal drive in any available bay. You must remove the small panel that covers the bay that you want to use.

NOTE: The drive can be mounted horizontally or vertically

If you don't have an empty bay, remove the existing IDE CD-ROM drive and install the PX-708A.

You must make a minimum of two cable connections to your PX-708A. The two cable connections that you must make are:

- IDE cable
- Power cable

There are also two optional cable connections:

- An analog audio cable connection if you are using a sound board in your computer and plan to connect the PX-708A's audio output to the audio connector on the sound board.
- A digital audio cable connection if the sound board is equipped with SPDIF or Digital-In and you wish to use the digital audio output from your PX-708A.

Do You Need Another IDE Ribbon Cable?

An IDE cable is a standard 40-pin flat-ribbon cable, usually with three connectors. One end connects to the IDE port on your computer's motherboard, and the other two connectors are free for attaching peripherals such as a hard disk, CD-ROM drive, or a PX-708A drive.

You may need to install another IDE ribbon cable in your computer. You can use the extra IDE cable supplied with your Plextor drive. (Just remember, if you want to use CSEL and Cable Select settings, this Plextor-supplied cable won't work—you'll have to purchase a special cable for Cable Select.)

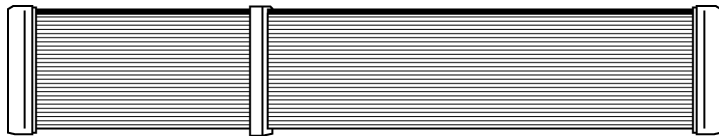


Figure 12: Standard IDE ribbon cable

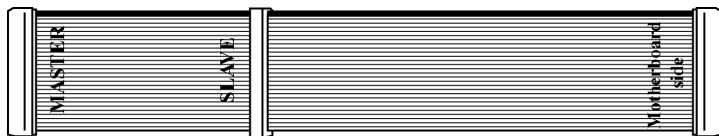


Figure 13: Ribbon cable for Cable Select (not supplied by Plextor)

CAUTION: The length of any IDE cable cannot exceed 18 inches.

Do You Need a Power Cable?

In most computers, you will find extra power connectors in the computer ready for your use. When you open the computer, check the cable running from your power supply to your hard disk drive and see if it has extra connectors on it. If so, you can plug one of these into the power connector found on the rear panel of the PX-708A.

If you do not find any additional connectors (either because they were not supplied or they are all in use), you will have to buy a “splitter” or a “Y-connector.” These can also be found at most retail and mail-order computer stores.

To mount the PX-708A drive:

1. Make sure the power to your computer and any external peripherals is turned OFF and your computer is UNPLUGGED from its power source.
2. If you haven't already removed the cover from your computer, remove it now, following the directions provided by your computer's manufacturer. Typically, this involves loosening or removing several screws on the back panel of your computer and sliding off the cover. See Figure 3 for details.
3. Remove the cover panel from the bay that will hold the drive. To remove the cover panel, pop it out by pressing outward lightly. (In some older computers, you may have to remove screws that hold the panel in place.)

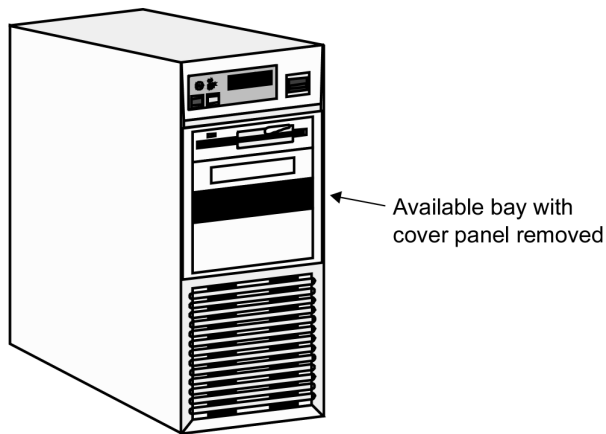


Figure 14: Removing the cover panel from a bay

4. Determine if you must install mounting rails on the sides of your drive. To do so, insert the drive into the open bay. If the drive fits tightly with little or no clearance on either side of the drive, you will not have to use mounting rails. The drive can be mounted directly into your computer. Go to step 6.

NOTE: Plextor does not provide rails. If you need rails, you can obtain them from the computer manufacturer or from a computer supply retail or mail-order store.

5. If you must use mounting rails, fasten the rails to the lower pair of holes as shown in Figure 15. (In some instances, you may need to fasten the rails to the upper set of holes.) After fastening the rails, check their positioning by sliding the drive into the bay before you mount the drive or connect any cables.

Be sure not to mistake the inner and outer face of the rail when attaching. Typically, the smooth side of the rail faces away from the drive's chassis.

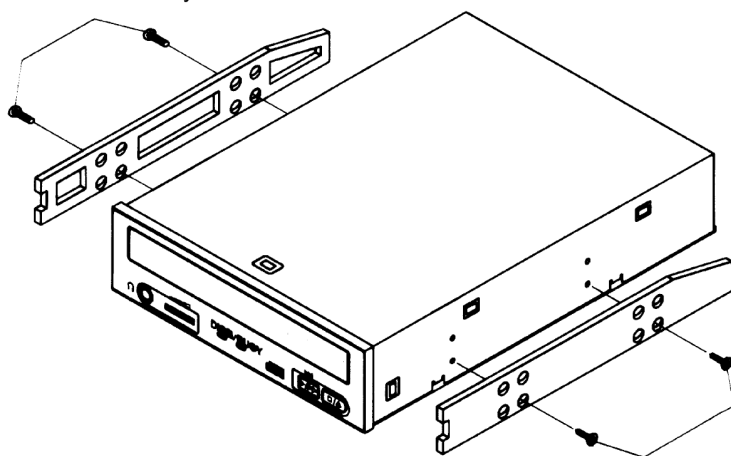


Figure 15: Installing mounting rails (if needed)

6. Plug one connector of the IDE cable into the IDE connector on the rear panel of the drive before you insert the drive into your computer. Then thread the cable through the front of the open bay and back toward the motherboard. The drive should slide smoothly into the bay. If it does not, check for obstructions in the bay and ensure the side rails are attached properly.
7. If not already connected, attach the other end of the IDE ribbon cable to the connector on the motherboard.

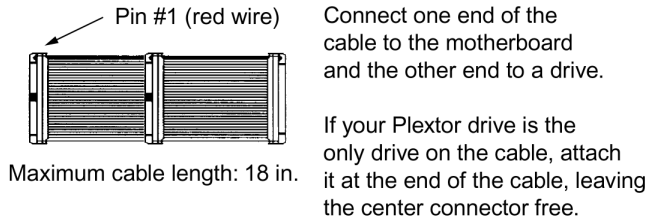


Figure 16: Connecting the IDE ribbon cable

CAUTION: With some IDE ribbon cables, it is easy to accidentally plug your IDE cable upside down into both your drive and the motherboard. Be sure you match the red stripe along one side of the IDE cable to Pin 1 on the motherboard and Pin 1 on the drive. (Pin 1 on the drive is closest to the power connector.) Note that each connector on most ribbon cables also has a “key” in the middle. This key should fit into a slot in the middle of each connector of the motherboard, your PX-708A drive, and any other internal IDE peripherals.

8. Double-check your work. You must ensure the side of the IDE cable with the red stripe is matched to Pin 1 on the interface board and on the drive.

CAUTION: In the case of only one IDE device, you must make certain that one end of the cable is always connected to the IDE connector on the motherboard. The other end of the connector must be connected to a device. The end connector of the cable should never be left unconnected.

9. Connect a power cable from the computer to the power connector (DC INPUT) of the drive. In most computers, you will find free power connectors that are ready for your use.

CAUTION: The power connector on the cable and the receptacle on the drive are keyed. Do not force the power connector into the drive, or the drive and/or the computer may be damaged.

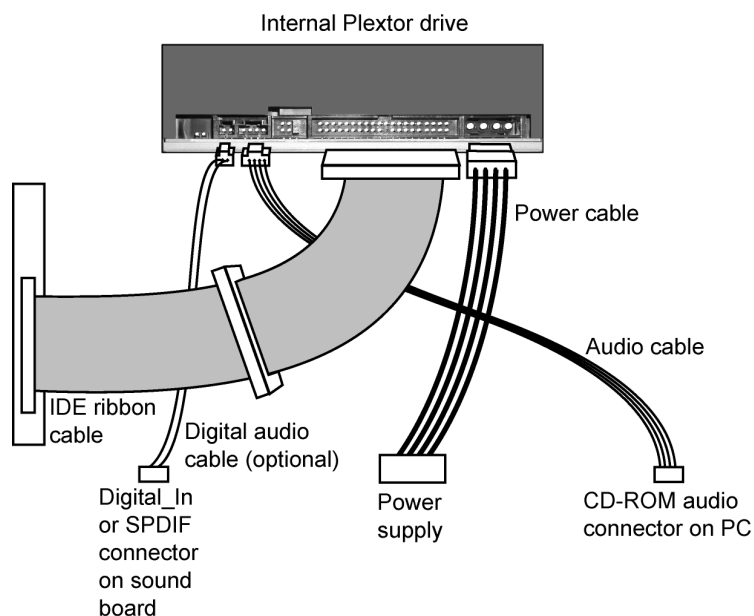


Figure 17: Cable connections for an internal IDE drive

10. Connect the analog audio cable if you want to use a sound board in your system. This cable runs from the four-pin analog audio output connector on the rear panel of your drive to the CD-ROM audio connector on the PC or your sound board. See “Using Sound Boards and Audio Cables” below for more information about audio cables.

11. Connect a digital audio cable if your sound board is equipped with the Sony/Philips Digital Interface (SPDIF) or Digital-In, and you wish to use the digital audio output from your PX-708A. This cable runs from the digital audio output connector pins on the PX-708A back panel to the sound board. (This cable is not supplied by Plextor.)
12. Mount the PX-708A drive in the computer using the four screws that were supplied with your drive. Use only these screws.

CAUTION: Do not mount your drive in your computer using screws other than those supplied by Plextor. You may damage the drive if you insert screws that are too long or the wrong thread type.

Using Sound Boards and Audio Cables

Whichever category your sound board falls into, you will find that the best source of information about installing the sound board in your computer is the board's manual. Once you have successfully installed the sound board in your computer, you can continue below for a description of the different cable connections that need to be made.

If you need audio cables, you will have to purchase them. Refer to the table below. A list of several vendors who offer audio cables is available on Plextor's web site.

Audio Connection	Cable Required	How to Connect It
MPC audio source	MPC-compliant audio cable	Connect to MPC audio source, and to analog audio output connector at the rear of the Plector drive.
Sound Blaster or compatible sound board	Sound Blaster-compatible analog audio cable	Connect to Sound Blaster-compatible audio board and to analog audio output connector at the rear of the Plector drive.
Digital audio output	Cable that's compatible with SPDIF or Digital-In.	Connect to SPDIF or Digital-In connector on sound board (if sound board supports digital audio) and to digital audio output connector at the rear of the Plector drive.

Make Sure the Drive Is Recognized

After installation, make sure the PX-708A drive and other IDE peripherals are recognized by your computer. To check whether they are recognized:

To see if the drive is recognized in Windows:

1. Turn the computer ON. After the computer boots up, you should see the Windows display.
2. Open Windows Explorer or My Computer and ensure there is an icon for the Plector drive, the hard disk, and another CD-ROM drive, if present. The Plector icon may be D: or E: or another designator.

3. If the PX-708A drive is not recognized in Windows, reboot the computer and use your computer's setup program to program the BIOS to recognize it.

NOTE: Refer to the computer's documentation for information on how to run the motherboard BIOS setup program.

4. Use the motherboard BIOS setup program to set up IDE Master and Slave designations, as needed for your configuration, on the primary or secondary IDE bus. If the IDE interface is disabled on your computer, you will need to enable it. If a Master or Slave device is set to "disable" or "none" or a similar designation, change it as appropriate to "enable" or "auto" (or something similar, depending on your setup program).
5. Save and exit your CMOS setup to restart your computer with the new settings.
6. In Windows 98SE, or Me, once the system comes up click the Start button, then Settings, then Control Panel, then double-click on System icon, then click on Device Manager tab. Click the + sign next to the CD-ROM heading and look at the "PLEXTOR DVDR PX-708A" entry underneath.
-or-
In Windows 2000 or XP, right-click on the My Computer icon and select Properties. Click on the Hardware tab, then click on the Device Manager button. Click the + sign next to the CD-ROM heading and look at the "PLEXTOR DVDR PX-708A" entry underneath.

If you do not see this drive listed as one of the devices, or if it has a yellow diamond with an exclamation point (!), contact Plextor Technical Support. (See "Appendix B: Technical Support" for the different ways you can contact us.)

3. Using Your PX-708A

This chapter explains how to use your drive and how to load, handle and care for your CDs.

What Media to Use

Use the right media! Your PX-708A drive's capabilities change depending on which type of compact disc you use.

DVD Media

DVD recordable media is available in two different, non-compatible formats:

- DVD+R and DVD+RW
- DVD-R and DVD-RW

Your PX-708A can *read* and *write* either media format. That is, it supports all these types of DVD media:

- **Digital Video Discs:** You can immediately play pre-recorded DVD discs, including movies and other DVDs.
- **DVD+R, DVD-R:** Recordable DVD. You can record on these discs, but only once. You can also read them.
- **DVD+RW, DVD-RW:** ReWritable DVD. You can record and re-record (up to 1,000 times) on these discs. You can also read them.

CD-ROM Media

In addition, the PX-708A supports these types of CD media:

- **CD-ROM:** You can immediately play or read prerecorded compact discs, such as audio CDs and data discs.
- **CD-R:** Recordable CD. You can record on these discs, but only once. You can also read them.
- **CD-RW:** Normal Speed, High Speed, and Ultra Speed ReWritable CD. These discs support recording and re-recording (up to 1,000 times). You can also read them.

To achieve a certain writing speed, you must use the appropriate media. To achieve 40X CD-R writing speed you must use certified 40X media; and to achieve 24X RW writing speed you must use Ultra Speed RW media.

Remember:

- Using Normal Speed (NS-RW) media you can rewrite at 4X.
- Using High Speed (HS-RW) media, you can rewrite at 10X.
- Using Ultra Speed (US-RW) media in this drive, you can rewrite at up to 24X.

You can write to Ultra Speed RW discs only on drives that support this media. Drives that are capable of writing to Ultra Speed ReWritable media, such as the Plextor PX-708A, are identified by a “Compact Disc ReWritable Ultra Speed” logo.



Figure 18: The logo identifies the type of CD-RW media

See “Recommended Media” on page 49 for a list of Plextor-approved media at the time this manual was printed, and see the Plextor web site at www.plextor.com for an updated list.

Tray Loading and Operation

To load and unload the tray:

1. While the drive is powered up, push the eject button on the front panel. The tray drawer slides out in 3–4 seconds.

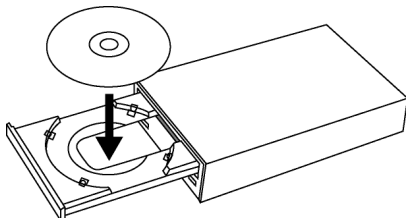


Figure 19: Loading the tray

2. Lay a CD or DVD disc in the depression in the tray, label side up.
3. Press the eject button again and the tray will slide shut within seconds.

NOTE: Always use the eject button to close the tray in a smooth and secure manner. Closing the tray by pressing the front of the drawer by hand is not recommended and risks damage or premature wearing of the mechanism.

Handling DVD and CD Media

Take care when handling blank CD and DVD media. Dust, scratches, and fingerprints on either side of the disc can cause write errors during recording. When picking up or holding blank media you can either place your fingers along the outer edge of the disc, or place one finger through the center hole and one finger on the outer edge. Once you have finished creating a disc, label it by writing on the top using permanent ink.

CAUTION: We recommend using a “non-toxic” marker, such as a Sharpie® pen, that conforms to the ASTM D-4236 standard. Some permanent markers will damage the media. Also, do not press too hard when writing on the disc.

NOTE: We do not recommend placing self-sticking CD-R labels on the disc. The weight of the label may unbalance the disc and cause write errors during recording or read errors during reading. Also, attempting to remove the label may permanently damage the disc.

Cleaning Discs

For proper read and write performance, your discs must be clean. Trying to record on a dirty disc may result in a failed session and ruin the disc.

To clean the disc, wipe the disc using a clean, soft cotton cloth to remove surface dirt such as fingerprints. Use a straight-line motion, wiping from the center out. Do not wipe the disc in a circular motion.

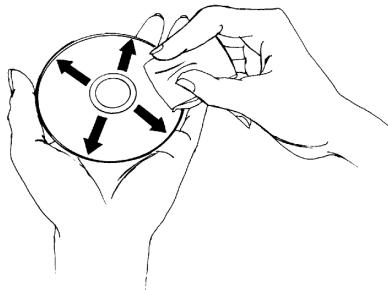


Figure 20: Wipe the disc from the center outward

HINT: Keep your frequently used discs in jewel cases at all times to prevent them from becoming dirty or damaged.

Mounting Position

You can operate your internal PX-708A drive in either a horizontal or a vertical position.

Playing DVDs

To play a digital video disc, insert the DVD as you would any other disc. The drive plays both single-layer and dual-layer discs.

The first time: A code on each DVD allows it to be played only on players designed for a certain regional area, such as North America, Europe, etc. When the drive ships there is no region code set. The first time a DVD that has a region setting is inserted into the drive, the drive is automatically set to that region code.

If you later insert a DVD with a different region code, you are prompted to either accept changing the region code or not. If you don't accept the change, then that DVD will not play. If you do accept the change, then the region code setting is changed. But remember: you can change the drive's region code only 5 times. After that, you can't change it any more.

Writing to DVD Media

You need special software that supports writing to DVD+R and DVD+RW discs: or to DVD-R and DVD-RW discs. The Roxio Easy CD Creator DVD Edition on the CD that accompanies your PX-708A contains this software.

Specifying +R/RW or -R/RW

You don't need to specify whether to write to +R/RW or -R/RW. The selection is automatically made for you, based on the media you insert in the drive.

Which Should I Choose?

Which is better, DVD+R and DVD+RW? Or DVD-R and DVD-RW? Neither is "better" or "worse." They're just different standards, like English versus metric measurement.

Different manufacturers support different standards. The DVD+R and DVD+RW formats are supported by Plextor, Philips, Sony, Hewlett-Packard, Dell, Ricoh, Yamaha and other manufacturers. DVD-R, DVD-RW and DVD-RAM are also supported by Plextor, as well as Panasonic, Toshiba, Apple Computer, Hitachi, NEC, Pioneer, Samsung and Sharp.

No matter which format a DVD disc is recorded in, it can be read by most commercial DVD-ROM players.

Writing to CD-R and CD-RW Media

In conjunction with your drive, mastering and packet writing software such as Easy CD Creator and DirectCD allow you to write audio, video, data, or other information to writable (CD-R) or rewritable (CD-RW) media. The PX-708A writes to all types of CD-RW media.

Using the LED Indicator

The color and blink rate of the front-panel LED indicator give you information about the drive's operation.

LED Color

PX-708A Status	Front-panel LED Indicator Color	LED On or Off
No disc	-	Off
Eject	Yellow	On
Loading	-	Off
Initialize	Yellow	On
Standby	Green	On
Read	Yellow	On
Write	Blinking amber	On
CD writing with Buffer Underrun Proof Technology	Green or blinking green	On
DVD Lossless Linking or Zero Link	Green or blinking green	On

LED Blink Rate

When you are writing to a CD-R or CD-RW disc, the color and blink rate of the front-panel LED indicator indicate the speed of writing, as follows:

LED blink interval in milliseconds	CD-R write speed	CD-RW write speed	DVD write speed
Amber, 40-ms interval	40X, 32X CD-R (CLV area)	24X CD-RW (CLV area)	8X (Z-CLV)
Amber, 80-ms interval	40X, 32X CD-R (CAV area); 16X CD-R (CLV)	24X CD-RW (CAV area); 10X CD-RW (CLV)	4X (CLV)
Amber, 150-ms interval	8X, 4X CD-R (CLV)	4X CD-RW (CLV)	2.4X, 2X (CLV)

Switching Between SpeedRead and Silent Operation

When you are playing a DVD-Video disc that has CSS (copy protection via the Content Scrambling System), the PX-708A normally plays at a slow speed (silent operation) to reduce drive noise. You can speed up DVD playback by using the eject button to enable SpeedRead.

To manually enable SpeedRead and speed up DVD playback:

1. Ensure the PX-708A disc tray is closed and empty.
2. Press and hold the PX-708A's eject button for at least 3 seconds. The LED indicator blinks green three times to indicate SpeedRead will be active for DVD-Video discs with CSS copy protection.
3. Release the eject button. The disc tray opens.
4. Insert a DVD-Video disc that is equipped with CSS copy protection.
5. Begin playing the disc.

SpeedRead changes the default DVD read speed to 5X-12X CAV for single layer DVD discs, or 3X-to 8X CAV for dual layer DVD discs.

To manually disable SpeedRead:

You can manually disable SpeedRead and return to silent operation (for DVD-Video discs with CSS) in either of two ways:

- Eject the disc.
- or-
- Turn off power to the drive.

Advantages of Buffer Underrun Proof Technology

The PX-708A incorporates Buffer Underrun Proof Technology, which guarantees that you can write CD-R and CD-RW discs at high speed, and still use your computer for other tasks while you're writing.

To prevent the interruption of data during writing, every CD-R/RW drive has a buffer, a memory chip that acts as a kind of "holding area." (Typically, the buffer size is 2 MB or 4 MB.) However, this buffer can be emptied quickly when you write at high speeds, or if you use other applications (like surfing the Internet or playing games or watching movies) while writing.

Buffer Underrun Proof Technology compensates for any interruption in data flow to the disc. It "remembers" where writing stopped on the disc when the data flow was interrupted, then restarts writing in the same place once the data is available again. Buffer Underrun Proof Technology in your drive means you can safely use your computer for other things while you're writing to a CD-R or CD-RW disc. It lets you multitask freely and easily, and lets you successfully create CDs on the first attempt.

Advantages of VariRec Technology

This drive is equipped with VariRec (Variable Recording) technology, a feature offered by Plextor that allows you to manually adjust the drive's laser power during the recording process. The drive supports VariRec for 4X and 8X CD-DA (audio) writing and data writing with CD-R discs.

NOTE: In order for you to actually perform the adjustment, VariRec must be supported by the recording software you're using.

Being able to adjust the laser power during the recording process can have some definite advantages. For instance, depending on the capabilities of your specific audio equipment, you may be able to change the sound quality of your recordings to suit the equipment. Or you may be able to correct compatibility problems that occur when playing discs on certain players.

How the Default VariRec Setting Is Determined

In most cases you don't have to worry about setting VariRec. The setting is 0 (zero) by default, and this usually works best. This default setting is determined by a combination of steps:

1. First, we test many types of CD-R and CD-RW media in our factory to determine the best write strategy (laser power and other factors) for that media.
2. We include a table of the tested media and their write strategy in your drive's firmware. (This table is updated when you update your drive by downloading new firmware from the Plextor web site.)
3. When you insert a recordable disc into your drive, Plextor's PoweRec technology automatically identifies the manufacturer, model, and special features of the media, then adjusts the laser power and writing speed so they're at the optimum settings for that disc.
4. The drive uses OPC (Optimum Power Control) to further fine-tune the laser power setting to the specific disc that is in your drive.
5. The combined values of the pre-defined write strategies, along with the OPC test results, create the default VariRec setting of zero.

Changing the VariRec Setting

VariRec lets you increase or decrease the laser power by up to 2 degrees in either the positive or negative direction from this default. You can change the laser power to do comparison testing with your CD player (home, auto, or CD-ROM drives) to find the power setting that best suits you.

Changing the laser power changes the characteristics of the audio being written. You can hear these changes during audio playback, although what you hear will depend on speaker quality, audio settings, and environment.

When You Write with VariRec

VariRec writes in either Track-at-Once (TAO) or Disc-at-Once (DAO) mode. It writes data or CD-DA (digital audio) on CD-R media at 8X or 4X speed, rather than at the full speed of the drive. For this reason, data or audio recording using VariRec will take significantly longer than a standard recording.

Advantages of Overburn

Overburn gives you the capability to burn an audio disc up to 99 minutes 59 seconds in length, or a data disc up to 875 MB in capacity. In order to use the Overburn feature, you need:

- Recording software that supports Overburn.
- Player software that recognizes the Overburned disc.
- Either a 94-minute or a 99-minute disc to allow the Overburn.

Remember, even if you can Overburn a disc, your player software must be able to recognize the Overburned disc, or you will not be able to play it back.

4. Maintenance and Troubleshooting

This chapter explains maintenance and troubleshooting procedures for your PX-708A drive.

With proper maintenance, you can prevent problems. If trouble arises, you can often solve many simple problems on your own, rather than wait for assistance from a Plextor representative.

Cleaning the PX-708A Drive

Plextor drives are sealed against external contamination, so in a normal computer environment and with normal use, your drive should not require internal cleaning. However, if your drive has been in use for some time and has just recently started to exhibit read/write problems, it is possible that dust has accumulated on the laser lens. In this case:

- If your drive is still in warranty and you are experiencing problems, send the drive to Plextor. (See “Returns” on page 61.)
- If your drive is out of warranty, before returning the drive for repair you may want to try a short blast of canned air aimed at the center of the drive. Use only electronics-grade canned air: sterile, filtered, and moisture-free. If you notice no improvements after this step, you will need to return the drive for repair.

CAUTION: Do not attempt to clean your drive using any solvent-based cleaners. Also, do not use an air compressor, because the high-pressure blast can damage the drive.

ANOTHER CAUTION: Do not use a CD cleaning disc. Cleaning discs that use a felt pad can scratch the laser lens surface and render the drive inoperable. Cleaning discs with brushes may also scratch the lens. Moreover, these cleaning discs are often out of balance, making their operation very noisy.

Upgrading Firmware

Plextor creates firmware revisions to meet the particular needs of large computer manufacturers. It is rare that these will impact the performance or operation of your drive. However, we advise that our customers always update drives with the latest available firmware. Before troubleshooting a possible problem with your PX-708A drive please visit our web site at www.plextor.com to check if you have the latest firmware.

To obtain new firmware for your drive:

1. Go to the Plextor web site at www.plextor.com.
2. Look for firmware upgrades in the Support area, on the Downloads page. There is a description of the latest firmware revision and its intended use.
3. Download the firmware to your computer.

To upgrade firmware in your drive's flash memory:

1. Run the executable file that you downloaded from Plextor's web site.
2. Accept all defaults by continuing to click on the "Next" button until you see the message:
Firmware update has completed.
3. Restart your system.

Troubleshooting

If you have problems during or right after installation of your drive, visit the Plextor web site to find tips to help find the problem.

Emergency Eject

If the automatic eject button at the front of the drive does not work, use this procedure to open the drive.

To use the emergency eject hole to open the drive:

1. Make sure power to the drive is OFF. (That is, turn off your computer.)

2. At the front of the drive, insert the emergency eject tool, or a paper clip or other thin, rigid object, into the emergency eject hole.
3. Push the tool or other object straight in, until the disc tray clicks open.
4. Carefully continue to slide the disc tray open.
5. Remove the CD from the disc tray.
6. Carefully push the disc tray shut.

Using the Self-Test Diagnostics

The PX-708A contains a set of self-test diagnostics that can help isolate trouble and determine if a problem is in the drive or elsewhere.

NOTE: Using the self-test diagnostics requires opening the computer and removing a cable from the drive, then replacing the cable at the end of the test. If you previously installed the PX-708A in your computer, you should have no fear of the simple procedures that are required. However, if you're not comfortable with opening your PC and disconnecting cables, you may want to let someone with more experience handle this aspect of troubleshooting for you.

To perform the tests you'll need:

- Tools to remove the computer's cover
- An extra jumper (supplied)
- A blank piece of Plextor-recommended DVD+R, DVD-R, or CD-R media. (See "Recommended Media" on page 50, or visit our web site.) The self-test will write to this media, so you won't be able to use this disc again.

Performing the Self-Test

This tests three functions of the drive: writing at maximum speed, continuous playback at maximum speed, and random access.

To perform the self-test:

1. Turn the computer's power OFF, unplug it from its power source, and open the computer to gain access to the rear of the PX-708A drive. Typically, this involves loosening or removing several screws on the back panel of your computer and sliding off the cover. (See Figure 3 for an example.)

CAUTION: Before you attempt to open your computer be sure to properly ground yourself by wearing an anti-static wristband. This will help prevent static damage to your computer system.

2. You should be able to see the back of the PX-708A drive connected to the ATAPI cable, power connector, and, optionally, an analog sound cable.

NOTE: You may have to remove the drive from the computer to perform the next two steps.

3. Hold the ATAPI cable at or near the base of its connection to the PX-708A drive. Carefully remove the ATAPI cable from the drive by pulling the cable gently rearward.
4. Note the position of the mode jumper at the rear of the PX-708A. A jumper will be installed on either the CABLE SELECT, SLAVE, or MASTER position. Write down this jumper position. (You'll need to replace the jumper after the test.) Then:
 - ☐ If the jumper is on the MASTER position, move it to the SLAVE or CABLE SELECT position for this test.
 - ☐ If the jumper is on the SLAVE or CABLE SELECT jumper, leave it in place.
 - ☐ The position of the DMA jumper (on or off) doesn't matter. Don't change it.
5. Install an extra jumper so that both the CABLE SELECT and SLAVE positions are jumpered, as shown in Figure 21.

6. If you removed the drive for access to the cable and mode jumpers, slide it back into the computer and connect the power cable to the drive.
7. Replace the computer's cover and re-connect the computer's power cord to the power source.
CAUTION: Turning on the computer power without first replacing the cover can be dangerous to the computer's components and also to you. Be aware of the danger of electric shock and do not touch any components inside the computer.
8. While pressing the eject button on the PX-708A, turn the computer power on. The LED indicator blinks green, then amber, and the tray ejects.

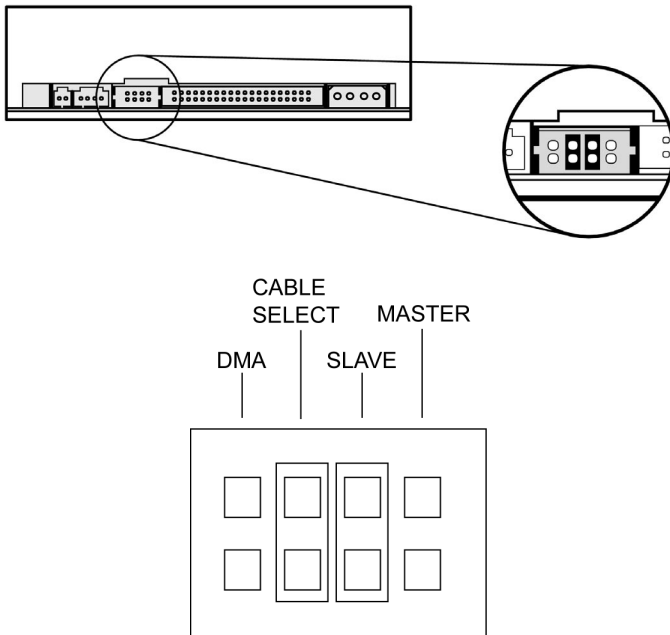


Figure 21: Place jumpers across both the *SLAVE* and *CABLE SELECT* pins to perform the self-test diagnostics

9. Insert a blank Plextor-recommended DVD±R or CD-R disc. Be sure to use only media of the type recommended by Plextor.
 - ❑ If the LED indicator blinks amber three times, the loaded disc is not a blank DVD±R or CD-R disc. Remove the disc and insert a blank, Plextor-recommended DVD±R or CD-R disc.
10. The drive begins the diagnostic routine. Upon completion of the diagnostic, you see the results:
 - ❑ If there was no problem, the disc is ejected automatically.
 - ❑ If there was a problem, the disc is not ejected, and you see the LED indicator blink green. One green blink indicates a write or read error. Two green blinks indicate an initialization error.
11. If the disc was not ejected automatically, press the eject button to eject the disc.
12. Turn off the computer power.
13. Reset the mode jumper at the rear of the PX-708A to its original setting as noted in Step 4 above. Also, remove the extra jumper you installed.
14. Reconnect the IDE cable to the PX-708A drive. If you removed the drive to gain access to the cable or jumpers, replace the drive in the computer. Then replace the computer cover.

If you discover a problem with the PX-708A drive, do not attempt to service the drive yourself. Contact us to get an RMA number and take steps to return the drive to Plextor. See “Returns” on page 61 for details.

What the Self-Test Results Indicate

- If a drive passes the self-test, then the drive’s operation is OK.
- If the drive fails the self-test, in some cases the problem may be caused by the media. Try the self-test again using a different brand of DVD±R or CD-R media; if the drive passes the self-test this time, the drive is OK.

Appendix A: PX-708A Specifications

Minimum System Requirements—PX-708A Internal ATAPI Drive

Computer Pentium III 700 MHz CPU or faster.

Minimum RAM 128 MB

Hard Disk Size 1 GB of free space to write to a CD in image mode, or
6 GB of free space to create DVD images. (For more
accurate guidelines, see the help files or
documentation for the recording software you're
using.)

Operating System Windows XP, 2000, Me, 98SE

Supported Media

Supported Media, DVD Read Stamped CDs: Single layer / Dual layer
DVD-R: For general version 2.0
DVD-RW: Version 1.0 / 1.1
DVD+R: Version 1.11
DVD+RW: Version 1.2

Supported Media, Stamped CD Red/Yellow Book-compliant discs

Supported Media, CD-R Orange Book Pt II-compliant discs (Type 74, Type 80)

Supported Media, CD-RW Orange Book Pt III-compliant discs

Supported Media Size CD: 12 cm
DVD: 12 cm

Recommended Media

DVD+R: 8X	Mitsubishi Chemical/Verbatim, Taiyo Yuden, Ricoh
	NOTE: PoweRec will determine if 8X speed is possible and will set the optimal write speed
DVD+R: 4X, 2.4X	Mitsubishi Chemical/Verbatim, Taiyo Yuden, Ricoh
DVD+RW: 4X, 2.4X	Mitsubishi Chemical/Verbatim, Ricoh
	NOTE: All DVD+RW media are rewritable up to 1,000 times.
DVD-R: 4X-1X	Mitsubishi Chemical/Verbatim, Taiyo Yuden, Maxell, TDK
DVD-RW: 2X-1X	Victor, Mitsubishi Chemical/Verbatim, TDK
	NOTE: All DVD-RW media are rewritable up to 1,000 times.
CD-R: 40X	Maxell, Mitsubishi Chemical/Verbatim, Taiyo Yuden
CD-R: 32X-4X	Maxell, Mitsubishi Chemical/Verbatim, Taiyo Yuden, Mitsui Chemicals, Ricoh
	NOTE: You can disable PoweRec. With PoweRec disabled, you can write at any speed (although your results may be poor).
CD-RW: 24X	Mitsubishi Chemical/Verbatim
CD-RW: 10X-4X	Ricoh, Mitsubishi Chemical/Verbatim
	NOTE: All CD-RW media are rewritable up to 1,000 times.

Usable Formats

Logical DVD Read/Write	DVD-ROM, DVD-Video, multi-border, multi-session, DVD+VR, DVD-VR (DVD-VR is read only)
Logical CD Read/Write	CD-DA, CD-Extra, CD-ROM Mode-1, CD-ROM Mode- 2, CD-ROM XA, Photo CD, Video CD, multi-session, CD-TEXT, CD-I, CD+G, UDF
Write Methods, DVD+R/RW	Sequential write, multi-session, random access write. DVD+MRW (Mount Rainier) physical formatting in background is supported.
Write Methods, DVD-R/RW	Disc-at-once (DAO), incremental recording, multi-border recording, restricted overwriting
Write Methods, CD-R/RW	Track-at-once (TAO), DAO, packet write (variable and fixed), multi-session, session-at-once (SAO), MRW (Mount Rainier)

Performance Specifications

Read Speed DVD	Speed	Stamped DVD	DVD+R, DVD-R Disc	DVD+RW, DVD-RW Disc
	5-12X CAV	Yes (Single- layer disc)	—	—
	3-8X CAV	Yes (Single or dual-layer disc)	Yes	Yes
	2-5X CAV	Yes (Single or dual-layer disc)	Yes	Yes
	2X CLV	Yes (Single or dual-layer disc)	Yes	Yes

NOTE: When a DVD-Video with CSS (copy protection via the Content Scrambling System) is loaded, the PX-708A slows its playback speed to reduce drive noise.

Performance Specifications (continued)Read Speed,
CD

Speed	Mode-1 Discs	Mode-2 Discs	CD-DA Discs
17-40X CAV	Stamp,R, RW	Stamp,R, RW	Stamp,R
14-32X CAV	Stamp,R, RW	Stamp,R, RW	Stamp,R, RW
10X CAV	Stamp,R, RW	Stamp,R, RW	Stamp,R, RW
8X CLV	Stamp,R, RW	Stamp,R, RW	Stamp,R, RW
4X CLV	Stamp,R, RW	Stamp,R, RW	Stamp,R, RW

NOTE: “Stamp” indicates commercially pressed “silver” discs.

Write Speed,
DVD+R/RW

Speed	DVD+R	DVD+RW
8X Z CLV	Yes	–
4X CLV	Yes	Yes
2.4X CLV	Yes	Yes
2X CLV	–	–
1X CLV	–	–

Write Speed,
DVD-R/RW

Speed	DVD-R	DVD-RW
8X Z CLV	–	–
4X CLV	Yes	–
2.4X CLV	–	–
2X CLV	Yes	Yes
1X CLV	Yes	Yes

Performance Specifications (continued)Write Speed,
CD-R/RW

Speed	CD-R	Ultra Speed CD-RW Media	High Speed CD-RW Media	Normal Speed CD-RW Media
40X PCAV	Yes	—	—	—
32X PCAV	Yes	—	—	—
24X PCAV	—	Yes	—	—
16X CLV	Yes	—	—	—
10X CLV	—	—	Yes	—
8X CLV	Yes	—	—	—
4X CLV	Yes	—	—	Yes

DVD Transfer
Rate

Speed	Write (Kbps)	Read (Kbps)
12X	—	6750~16200 (CAV)
8X	8100~10800 (ZCLV)	4500~10800 (CAV)
5X	—	2800~6750 (CAV)
4X	5400 (CLV)	—
2.4X	3240 (CLV)	—
2X	2700 (CLV)	2700 (CLV)
1X	1350 (CLV)	—

CD Transfer
Rate

Speed	Write (Kbps)	Read (Kbps)
40X	3000~6000 (PCAV)	2710~6000 (CAV)
32X	3000~4800 (PCAV)	2170~4800 (CAV)
24X	3000~3600 (PCAV)	1600~3600 (CAV)
16X	2400 (CLV)	—
10X	1500 (CLV)	—
8X	1200 (CLV)	1200 (CLV)
4X	600 (CLV)	600 (CLV)

Performance Specifications (continued)

Initialization Time	Time measured from power on until disc is available to read: <ul style="list-style-type: none">▪ DVD: < 13 sec. (typical), < 15 sec. (max.)▪ CD: < 13 sec. (typical), < 15 sec. (max.)
Access Time	Time measured from command phase until bus free (no disconnect): <ul style="list-style-type: none">▪ DVD: < 150 msec. (typical), < 180 msec (max.)▪ CD: < 100 msec. (typical), < 130 msec (max.)
Sleep Mode	Entered after 2 minutes of no access to drive (default setting)
Wake Mode	< 5 sec. (max.) to start drive after sleep

DVD Regional Setting

Compatibility	RPC phase-2-compatible
Changing regional setting	Max. 5 times

Host Interface

Type	ATA/ATAPI-5-compliant
PIO Transfers	Modes 0-4
Multiword DMA Transfers	Modes 0-2
Ultra DMA Transfers	Modes 0-2 (Ultra DMA33)
ATAPI Command Set	Refer to the Plextor ATAPI command manual.
Inquiry string	PLEXTOR sp DVDR sp sp sp PX-708A sp sp (where "sp" is one space)

Front Panel

Eject	Eject button; manual emergency eject; software eject.
LED Indicator	<p>Yellow when initializing, reading, or ejecting disc. Green during standby and when Buffer Underrun Proof Technology or Lossless Linking/Zero Link is active. Blinking amber when writing to disc. Blink rate indicates writing speed:</p> <ul style="list-style-type: none"> ▪ 40 ms interval: Writing DVD at 8X Z-CLV; CD-R at 40X or 32X (CLV area); or CD-RW at 24X (CLV area). ▪ 80 ms interval: Writing DVD at 4X CLV; CD-R at 40X or 32X (CAV area), or 16X CLV; or CD-RW at 24X (CAV area) or 10X CLV. ▪ 150 ms interval: Writing DVD at 2.4X or 2X CLV; CD-R at 8X or 4X CLV; or CD-RW at 4X CLV.
Disc Loading	Auto
Headphone Jack	<p>Stereo mini-jack for headphones and powered speakers.</p> <ul style="list-style-type: none"> ▪ Output voltage (max. volume): 0.8V (rms) \pm0.3V ▪ Load impedance: 32 ohms ▪ S/N ratio: Typically 80dB ▪ Total harmonic distortion + noise: Max. 0.08% (1kHz) ▪ Dynamic range: Typically 75dB (1kHz) ▪ Channel separation: Typically 50dB (1kHz) ▪ Frequency response: 20Hz to 20kHz (+1/-5dB)
Headphone Volume Control	Wheel knob controls audio output level at front panel headphone jack only.

Rear Panel

Power Supply

	DC +12V, ±10%	DC +5V, ±5%
Typical standby current	100 mA	300 mA
Typical DVD read current (DVD 12X)	900 mA	500 mA
Typical CD read current (CD 40X)	900 mA	500 mA
Typical DVD write current (DVD+R 8X)	900 mA	500 mA
Typical write current (CD-R 40X)	1.0 A	700 mA
Typical pause current	600 mA	600 mA
Peak current	2.0 A	1 A

IDE Interface
Connector

IDE bus, 40-pin flat ribbon type. Interface complies with ATA/ATAPI-5. Maximum total cable length cannot exceed 18 in (45.7 cm).

Analog Audio
Output

Stereo analog output, Molex connector (L*G*G*R), MPC-3 standard:

- Output voltage (max. volume): 0.55V(rms) ±1V
- Load impedance: 10 k ohms
- S/N ratio: Min. 80dB
- Total harmonic distortion+noise: Max. 0.08% (1kHz)
- Dynamic range: Typically 75dB (1kHz)
- Channel separation: Typically 70dB (1kHz)
- Frequency response: 20Hz to 20kHz (0dB ±5dB)

Digital Audio
Output

Digital audio output for input to SPDIF or Digital-In input

Mode Jumper

Master (default), slave, cable select (CSEL)

DMA Jumper

Open (no jumper): Ultra DMA mode 0-2 (default)
Short (jumper installed): Multiword DMA mode 0-2

Other Features

Data Buffer

2 MB

Environmental Conditions

Mounting Position	Horizontal or vertical orientation: <ul style="list-style-type: none"> ▪ Horizontal: ± 15 degrees ▪ Vertical: Front side up or down, ± 15 degrees
Operating Temperature	0 to 40 degrees Celsius
Performance Guarantee Temperature	5 to 40 degrees Celsius
Operating Humidity	20 to 80% (non-condensing)
Storage Temperature	-40 to 60 degrees Celsius
Storage Humidity	20 to 95 % (non-condensing)
Acoustic Noise	Playing balanced disc: Maximum 45dB Playing unbalanced disc: Maximum 45dB Tray ejecting: Maximum 50dB
Vibration, Operating	Sine sweep 5 minutes: <ul style="list-style-type: none"> ▪ CD/DVD read: $0.15G_{0-Pk}$ (5-300Hz) ▪ CD-R write: $0.15G_{0-Pk}$ (5-300Hz) ▪ CD-RW rewrite: $0.10G_{0-Pk}$ (5-300Hz) ▪ DVD write: $0.10G_{0-Pk}$ (5-300Hz)
Vibration, Non-Operating	Sine sweep 5 minutes: $2.0G_{0-Pk}$ (5-300Hz) (Power off, without disc)
Shock, Operating	11msec half sine, 10 sec interval: <ul style="list-style-type: none"> ▪ CD read: $5.0G_{0-Pk}$ (5-300Hz) ▪ DVD read: $5.0G_{0-Pk}$ (5-300Hz) ▪ CD-R write: $1.5G_{0-Pk}$ (5-300Hz) ▪ CD-RW rewrite: $0.5G_{0-Pk}$ (5-300Hz) ▪ DVD+R/RW write: $0.5G_{0-Pk}$ (5-300Hz)

Environmental Conditions (continued)

Shock, Non-operating	Permissible velocity: Minimum 62G Permissible velocity change: Minimum 220cm/sec (Power off, without disc)
Electrostatic Discharge	±8KV aerial discharge ±4KV contact discharge Both with no hard errors, no damage

Dimensions and Weight

Dimensions (W/H/D) (excluding front panel)	5.75" x 1.63" x 7.48" 146 mm x 41.3 mm x 190 mm
Weight	< 2.6 lbs. (1.2 kg)

Reliability

MTBF	60,000 hours
Tray Loading	50,000 load/unload cycles
Read Error Rate	CD-ROM Mode 1: 1 block/10 ¹² bits CD-ROM Mode 2: 1 block/10 ⁹ bits

Safety, Laser, and EMC Standards

Country/ Region	Type	Agency	Standard
USA	Safety	UL	UL 1950
	Laser	FDA	FDA 21 CFR 1040.10 and 1040.11
Canada Europe	EMC	FCC	FCC Part15B-Class B
	Safety	UL (C-UL)	CSA 22.2 No. 950
	Safety	CE	EN60950
	Laser	CE	EN60825-1
Taiwan Korea Australia/NZ	EMC	CE	EN55024, EN50022 Class B
	EMC	BSMI	CNS13438 Class B
	EMC	MIC	
	EMC	C-Tick	AS/NZS3548 Class B

Appendix B: Technical Support

Store Plextor's e-mail, web site, phone, and fax numbers in a convenient location. Keep your drive's serial number and a copy of your sales receipt handy as well.

If you experience a problem while installing or operating your drive, please refer first to the relevant sections of this manual regarding setup and installation (Chapters 1–3). If you do not uncover the solution there, please refer next to the maintenance and troubleshooting chapter that begins on page 43. You may also wish to refer to the Frequently Asked Questions (FAQ) section of our web site to assist you in troubleshooting the problem on your own.

NOTE: We encourage you to go the Plextor web site (www.plextor.com) before attempting to contact Technical Support. The answers to the most common questions callers ask can be found quickly in the support area. Select PlexHelper for online troubleshooting or FAQs for answers to common questions.

If you have not been successful in your quest, our Technical Support Department will help you solve problems that relate specifically to your PX-708A drive. In many cases, a problem that appears to be caused by your Plextor drive actually originates in another part of your computer. In such instances, our technical support staff will try to help you identify the part at fault and will refer you to the manufacturer of that part for further assistance.

How to Contact Plextor Technical Support

There are several ways for you to contact Plextor's Technical Support Department:

- Visit our web site (www.plextor.com) for answers to Frequently Asked Questions.
- Send us e-mail at support@plextor.com. Include your telephone number and the hours during which you can be reached. Be as detailed as possible in describing your problem. Please include system configuration, hardware and software, as well as versions of drivers used.
- Call 800-886-3935 and select the tech support option.

Before You E-mail/Log On/FAX/Call for Support

Please gather as much of the following information as possible before contacting us.

- The serial number and TLA (top level assembly) number of your PX-708A drive. Your serial number and TLA number appear both on the drive label and on a sticker at the rear of internal drives.
- The latest version of firmware you loaded onto the drive, if applicable.
- The version of the Windows operating system you are using.
- The brand name and model number of your computer (e.g., Dell 466/NP, Hewlett-Packard Pavilion 752n, etc.).
- The type of VGA, Super VGA, or other graphics board you use.
- Brand name and model number of any other peripherals you have installed or connected to your computer (e.g., CD-ROM, scanner, fax board, network board).

Returns

In the unlikely event that you need to return a drive to Plextor, you need an RMA (Returned Materials Authorization) number. You need this number before any Plextor drive can be returned for repair or replacement. Here's how you get an RMA number and return your drive:

1. Contact Plextor Technical Support. You will receive assistance in troubleshooting your system. If the drive is determined to be defective, you will receive a Tech Support Ticket Number.
2. Locate the RMA request form at:
https://www.plextor.com/english/support/rma_request_form.htm.
Complete the form, providing the Technical Support Ticket number and details of the drive failure. After completing the form, click the Submit button.

IMPORTANT NOTE: The RMA form will NOT be processed without the Tech Support Ticket Number.

3. Plextor will then return the RMA form to you via e-mail, with the RMA number and shipping information included.
4. When you receive the RMA number, pack the Plextor drive securely in a box, and include the RMA form as a packing slip.
5. Write the RMA number in large letters on the outside of the box, and ship the box and the drive to Plextor.

Contacting Plextor's RMA Department

You can contact our RMA Department and request RMA forms at:

- rmasupport@plextor.com
- Or by fax at 510-651-9765
- Or by calling us at 800-886-3935

Packing Your Drive

Check the drive to make sure there is no disc inside, and if possible, pack your drive in the original box. Some of our customers have not held on to their boxes and have had to resort to less-than-secure methods to get drives back to us.

CAUTION: Never ship the drive with a CD or DVD disc inside it.

If you did not receive a box (for example, your drive came pre-installed in a computer), we recommend you pay a packaging store (such as Mail Boxes Etc.) to ship your drive. If you don't have a packaging store in your area, ask for packaging pointers when you contact us to get an RMA number before returning any drive.

Shipping Your Drive to Plextor

Be sure to write the RMA number on the outside of the shipping box. Any drive sent to Plextor without an RMA number will not be accepted.

NOTE: The RMA number must be clearly visible on the outside of the shipping box.

Drives must be sent postage prepaid. We recommend that you insure your shipment, as Plextor cannot be held responsible for any damage that may occur during shipment.

Appendix C: Warranty

PLEXTOR CORP. ("Plextor") warrants your PX-708A drive against any defect in material and workmanship, under normal use, for a period of one year following its date of purchase. In the event this product is found to be defective within the warranty period, PLEXTOR will, at its option, repair or replace the defective unit.

This warranty is void: a) if the unit is operated or stored under abnormal use and/or conditions; b) if the unit is repaired, modified or altered, unless such repair, modification or alteration is expressly authorized in writing by PLEXTOR; c) if the unit is subjected to abuse, neglect, lightning strike, electrical fault, improper packaging, or accident; d) if the unit is installed improperly; or e) if the serial number of the unit is defaced or missing.

PLEXTOR will not, under any circumstances, be liable for direct, special, or consequential damages such as, but not limited to, damage or loss of property or equipment, loss of profits or revenues, cost of replacement goods, or expense or inconvenience caused by service interruptions. Under no circumstances will any person be entitled to any sum greater than the purchase price paid for the unit.

To obtain warranty service, you must contact PLEXTOR's Technical Support Department by e-mail (support@plextor.com) or by calling 800-886-3935. The Technical Support Department will attempt to diagnose and correct your problem. If the unit does not function properly, they will give you instructions on obtaining a Return Material Authorization (RMA) number. You may be asked to furnish proof of purchase to confirm that the unit is still under warranty.

All product returns must be authorized in advance by PLEXTOR. Authorization is confirmed by issuance of the RMA number, which must be written prominently on the outside of the box in which the defective unit is returned to PLEXTOR.

All drives returned to PLEXTOR must be securely packaged and shipped postage prepaid.

The drive will be returned to the customer at Plextor's expense when originating within the United States. For a drive originating outside of the United States, the customer is responsible for shipping costs in both directions.

NOTE: Warranty validity is limited to that applicable in the location where the drive was originally purchased.

If You're Outside the U.S. or Canada

Note that the warranty and RMA policy only apply to the United States and Canada. If you are in South America, contact your dealer or reseller for all warranty and RMA claims.

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Notes

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